Modified full-thickness resection of a small subepithelial tumor with the help of a corkscrew

Morell, Bernhard ; Murray, Fritz Ruprecht ; The, Frans Olivier ; Bütikofer, Simon ; Gubler, Christoph

Abstract: With the advent of endoscopic full-thickness resection (EFTR), small subepithelial tumors (SETs) became easily resectable both in upper and lower gastrointestinal tract. Several studies have suggested that complete resection of SETs is achievable in the vast majority of cases and severe complications occur only rarely [1]. Whereas technical success in the case of mucosal or submucosal lesions is easy to accomplish, for tumors arising from the muscularis propria, an R0 resection is more difficult to achieve by EFTR [1]. Grasping these lesions with the Twin Grasper may lead to tenting of the mucosa and submucosa, which in turn leads to incomplete removal of the SET. To overcome this technical problem, we herein present the feasibility of EFTR using a tissue-retracting helix device that was originally designed as part of the OverStitch endoscopic suturing system (Apollo Endosurgery Inc., Austin, Texas, USA). We describe the case of a 75-year-old patient who was referred for removal of an incidental SET in the proximal gastric corpus. Endosonography suggested a small gastrointestinal stromal tumor (GIST) ([Fig. 1]). After the lesion had been marked ([Fig. 2 a]), the gastroduodenal EFTR device (Ovesco, Tübingen, Germany) was mounted onto the endoscope and the helix device was advanced through the working channel. Once the endoscope was centered over the lesion, it was gradually punctured with the helix; the device was then manually rotated (like a corkscrew), resulting in tissue approximation. After this “fixation” procedure, it was easy to retract the lesion into the cap using gentle suction. The SET was then resected in the usual fashion, with adequate closure of the resection site ([Fig. 2 b]; [Video 1]). The resected specimen ([Fig. 3]) was shown histologically to be a completely resected leiomyoma.

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FTR with helix device.avi	

Modified Full Thickness Resection with the help of a cork-screw

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Running Title: Modified full thickness resection using helix for tumors arising from muscularis propria

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The authors have no conflict of interest to declare.

Main Text:

With the advent of endoscopic full thickness resection (EFTR) small subepithelial tumors (SET) became easily resectable both in upper and lower GI tract. Several studies have suggested that complete resection of SETs is achievable in the vast majority of the cases and severe complications only rarely occur (1). Whereas technical success in the case of mucosal or submucosal lesions is easy to accomplish tumors arising from muscularis propria are more difficult to be R0-resected by EFTR (1). Grasping these lesions with the twin grasper may lead to tenting of the mucosa and submucosa which in turn leads to incomplete removal of the SET. To overcome this technical problem we herein present the feasibility of full thickness resection using a tissue-retracting helix device, originally designed as part of the OverStitch endoscopic suturing system (Apollo Endosurgery Inc., Austin, TX, USA).

We describe a case of a 75 year old patient who was referred for removal of an incidental SET in the proximal gastric corpus. Endosonography suggested a small GIST (fig. A). After marking of the lesion (fig. B), the gastroduodenal full thickness resection device (OVESCO, Tübingen, Germany) was mounted to the endoscope and the helix device advanced through the working channel. Once centered, the lesion was gradually punctuated with the helix, followed by a manual rotation of the device (in accordance to a cork-screw) resulting in a tissue approximation. After this “fixation”, the lesion could be easily retracted into the cap using gentle suction. The SET was resected in the usual fashion with adequate closure of the resection site (fig. C/D). Histology showed a completely resected leiomyoma. In summary, resection of SET arising from the M. propria using the helix device is technically feasible and may overcome the risk of incomplete resection. Studies, however, are needed to support this hypothesis.

Video legend:

Modified Full Thickness Resection with the help of a cork-screw

Video text:

Introduction and demonstration of helix device; Positioning of helix in center of the lesion; Punctuation followed by manual rotation of device (tissue approximation); Retraction of lesion into cap

References

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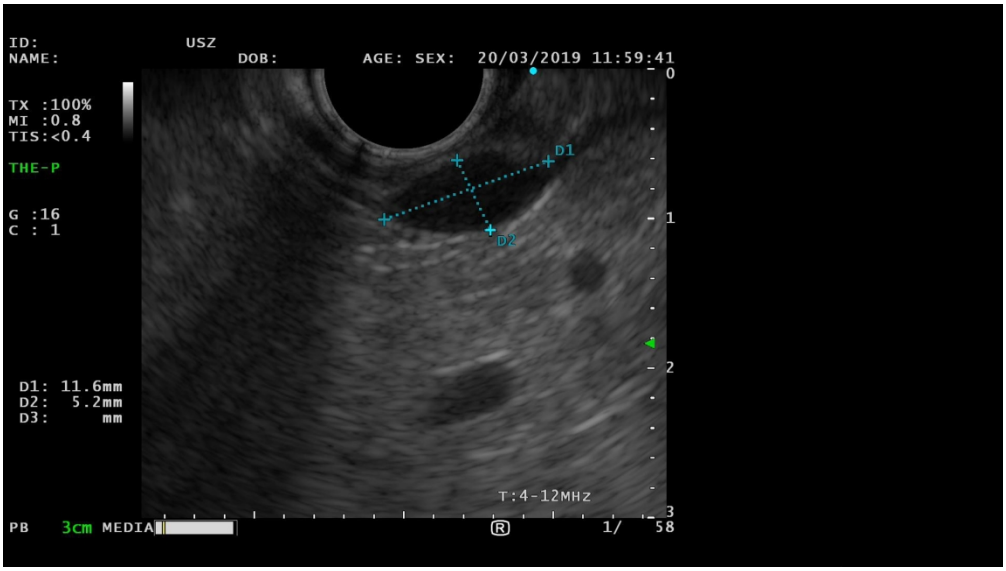

Fig. A: Endosonographic image of lesion

508x285mm (300 x 300 DPI)

Fig. B: Endoscopic image of lesion after marking

508x285mm (300 x 300 DPI)

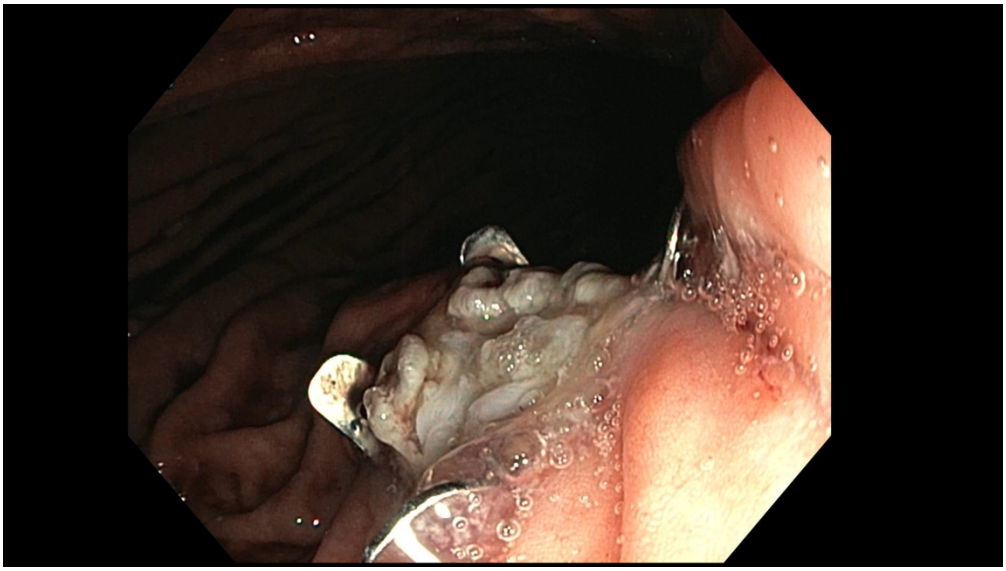

Fig. C: Resection site after placement of over the scope clip

508x285mm (300 x 300 DPI)

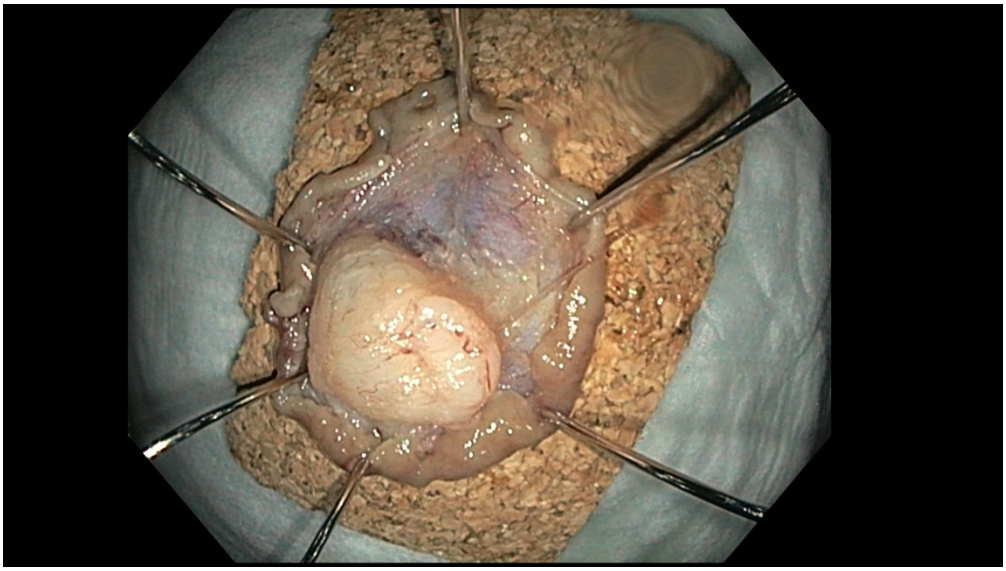

Fig. D: Resected lesion

508x285mm (300 x 300 DPI)

Video_Image

267x196mm (300 x 300 DPI)